

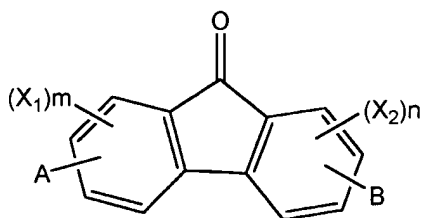
CLAIMS

What is claimed is:

1. A positively-charged electrophotographic organic photoreceptor comprising:
an electrically conductive support; and
a charge transport layer and a charge generating layer sequentially stacked on the electrically conductive support,

wherein the charge generating layer is formed by coating a charge generating layer forming composition comprising a fluorene compound represented by Formula 1, a charge generating material, a binder resin and an organic solvent on the charge transport layer, and drying:

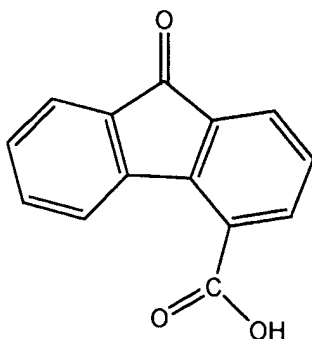
Formula 1



wherein A and B are independently selected from the group consisting of a carboxyl group, a substituted or unsubstituted C₂-C₁₀ alkoxy carbonyl group and a substituted or unsubstituted C₂-C₁₀ alkylaminocarbonyl group, X₁ and X₂ are independently a halogen atom, and m and n are independently an integer from 0 to 3.

2. The positively-charged electrophotographic organic photoreceptor of claim 1, wherein the fluorene compound represented by Formula 1 includes a compound represented by Formula 2:

Formula 2



3. The positively-charged electrophotographic organic photoreceptor of claim 1, wherein an amount of the fluorene compound represented by Formula 1 is in a range of 0.1-20 parts by weight based on 100 parts by weight of a total weight of a solid content of the charge generating layer forming composition.

4. The positively-charged electrophotographic organic photoreceptor of claim 1, wherein the organic solvent is a mixed solvent of an alcoholic solvent and an acetate-based solvent.

5. The positively-charged electrophotographic organic photoreceptor of claim 4, wherein an amount of the acetate-based solvent is in a range of 10 to 50 parts by weight based on a total weight of the organic solvent.

6. The positively-charged electrophotographic organic photoreceptor of claim 4, wherein the alcoholic solvent is at least one selected from the group consisting of ethanol, isopropyl alcohol, n-butanol, methanol, 1-methoxy-2-propanol, diacetone alcohol, isobutyl alcohol and t-butyl alcohol, and the acetate-based solvent is at least one selected from the group consisting of ethyl acetate, butyl acetate, isopropyl acetate, isobutyl acetate and sec-butyl acetate.

7. The positively-charged electrophotographic organic photoreceptor of claim 1, wherein the charge generating layer forming composition further comprises a basic compound.

8. The positively-charged electrophotographic organic photoreceptor of claim 7, wherein the basic compound is at least one selected from the group consisting of ammonium hydroxide and sodium hydroxide, and an amount of the basic compound is in a range of 1 to 20 parts by weight based on 100 parts by weight of a total weight of solid content of the charge generating layer forming composition.

9. The positively-charged electrophotographic organic photoreceptor of claim 1, wherein an overcoat layer is further formed on the charge generating layer.

10. The positively-charged electrophotographic organic photoreceptor of claim 9, wherein the overcoat layer includes at least one selected from the group consisting of polyaminoether, polyurethane and silsesquioxanes.

11. The positively-charged electrophotographic organic photoreceptor of claim 1, wherein the charge generating material is a phthalocyanine pigment, and an amount of the charge generating material is in a range of 55 to 85 parts by weight based on 100 parts by weight of a total weight of a solid content of the charge generating layer forming composition.

12. The positively-charged electrophotographic organic photoreceptor of claim 1, wherein the binder is polyvinylbutyral, and an amount of the binder is in a range of 10 to 40 parts by weight based on a total weight of a solid content of the charge generating layer forming composition.

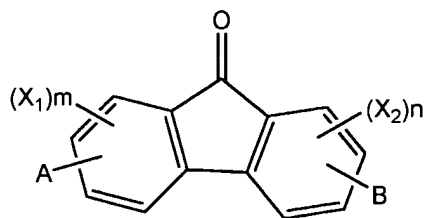
13. An electrophotographic imaging process that utilizes a positively-charged electrophotographic organic photoreceptor comprising:

an electrically conductive support; and

a charge transport layer and a charge generating layer sequentially stacked on the electrically conductive support,

wherein the charge generating layer is formed by coating a charge generating layer forming composition comprising a fluorene compound represented by Formula 1, a charge generating material, a binder resin and an organic solvent on the charge transport layer, and drying:

Formula 1

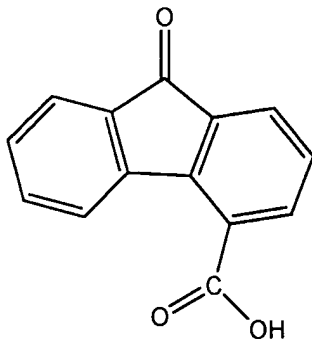


wherein A and B are independently selected from the group consisting of a carboxyl group (-COOH), a substituted or unsubstituted C₂-C₁₀ alkoxy carbonyl group and a substituted or unsubstituted C₂-C₁₀ alkylaminocarbonyl group, X₁ and X₂ are independently a halogen atom, and m and n are independently an integer from 0 to 3,

wherein the positively-charged electrophotographic organic photoreceptor directly contacts a liquid toner.

14. The electrophotographic imaging process of claim 13, wherein the fluorene compound represented by Formula 1 includes a compound represented by Formula 2:

Formula 2



15. The electrophotographic imaging process of claim 13, wherein an amount of the fluorene compound represented by Formula 1 is in a range of 0.1-20 parts by weight based on 100 parts by weight of a total weight of a solid content of the charge generating layer forming composition.

16. The electrophotographic imaging process of claim 13, wherein the organic solvent is a mixed solvent of an alcoholic solvent and an acetate-based solvent.

17. The electrophotographic imaging process of claim 13, wherein the charge generating layer forming composition further comprises a basic compound.

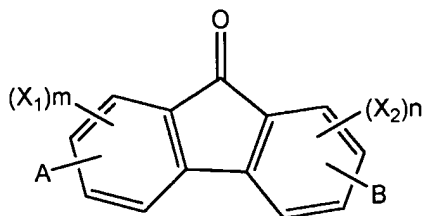
18. The electrophotographic imaging process of claim 17, wherein the basic compound is at least one selected from the group consisting of ammonium hydroxide and sodium hydroxide, and an amount of the charge generating layer forming composition is in a range of 1 to 20 parts by weight based on 100 parts by weight of a total weight of a solid content of the charge generating layer forming composition.

19. The electrophotographic imaging process of claim 13, wherein an overcoat layer is further formed on the charge generating layer.

20. The electrophotographic imaging process of claim 19, wherein the overcoat layer includes at least one selected from the group consisting of polyaminoether, polyurethane and silsesquioxanes.

21. An electrophotographic cartridge, comprising:
 a positively-charged electrophotographic organic photoreceptor comprising:
 an electrically conductive support; and
 a charge transport layer and a charge generating layer sequentially stacked on the electrically conductive support,
 wherein the charge generating layer is formed by coating a charge generating layer forming composition comprising a fluorene compound represented by Formula 1, a charge generating material, a binder resin and an organic solvent on the charge transport layer, and drying:

Formula 1



wherein A and B are independently selected from the group consisting of a carboxyl group, a substituted or unsubstituted C₂-C₁₀ alkoxy carbonyl group and a substituted or unsubstituted C₂-C₁₀ alkylaminocarbonyl group, X₁ and X₂ are independently a halogen atom, and m and n are independently an integer from 0 to 3; and

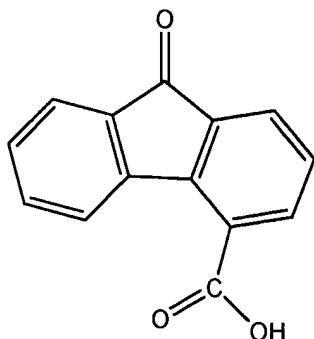
at least one of:

- a charging device that charges the electrophotographic photoreceptor;
- a developing device which develops an electrostatic latent image formed on the electrophotographic photoreceptor; and
- a cleaning device which cleans a surface of the electrophotographic photoreceptor,

wherein the electrophotographic cartridge is attachable to/detachable from an image forming apparatus.

22. The electrophotographic cartridge of claim 21, wherein the fluorene compound represented by Formula 1 includes a compound represented by Formula 2:

Formula 2

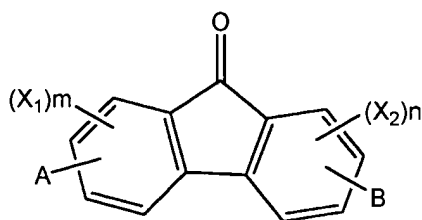


23. The electrophotographic cartridge of claim 21, wherein an amount of the fluorene compound represented by Formula 1 is in a range of 0.1-20 parts by weight based on 100 parts by weight of a total weight of a solid content of the charge generating layer forming composition.

24. The electrophotographic cartridge of claim 26, wherein the overcoat layer includes at least one selected from the group consisting of polyaminoether, polyurethane and silsesquioxanes.

25. An electrophotographic drum, comprising:
a drum that is attachable to and detachable from an electrophotographic apparatus;
and
a positively-charged electrophotographic organic photoreceptor, disposed on the drum, the positively-charged electrophotographic organic photoreceptor comprising:
an electrically conductive support; and
a charge transport layer and a charge generating layer sequentially stacked on the electrically conductive support,
wherein the charge generating layer is formed by coating a charge generating layer forming composition comprising a fluorene compound represented by Formula 1, a charge generating material, a binder resin and an organic solvent on the charge transport layer, and drying:

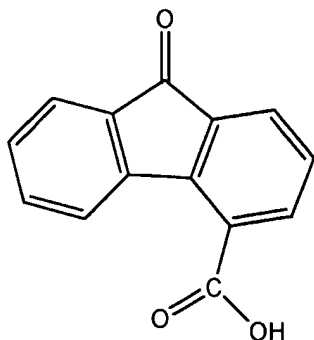
Formula 1



wherein A and B are independently selected from the group consisting of a carboxyl group, a substituted or unsubstituted C₂-C₁₀ alkoxy carbonyl group and a substituted or unsubstituted C₂-C₁₀ alkylaminocarbonyl group, X₁ and X₂ are independently a halogen atom, and m and n are independently an integer from 0 to 3.

26. The electrophotographic drum of claim 28, wherein the fluorene compound represented by Formula 1 includes a compound represented by Formula 2:

Formula 2



27. The electrophotographic drum of claim 28, wherein an amount of the fluorene compound represented by Formula 1 is in a range of 0.1-20 parts by weight based on 100 parts by weight of a total weight of a solid content of the charge generating layer forming composition.

28. The electrophotographic drum of claim 28, wherein an overcoat layer is further formed on the charge generating layer.

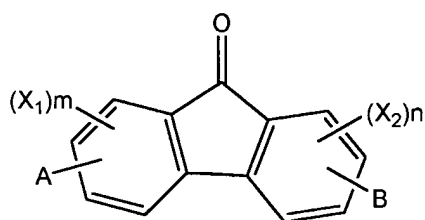
29. The electrophotographic drum of claim 33, wherein the overcoat layer includes at least one selected from the group consisting of polyaminoether, polyurethane and silsesquioxanes.

30. An image forming apparatus comprising:

a photoreceptor unit comprising:

- a positively-charged electrophotographic organic photoreceptor comprising:
 - an electrically conductive support; and
 - a charge transport layer and a charge generating layer sequentially stacked on the electrically conductive support,
- wherein the charge generating layer is formed by coating a charge generating layer forming composition comprising a fluorene compound represented by Formula 1, a charge generating material, a binder resin and an organic solvent on the charge transport layer, and drying:

Formula 1



wherein A and B are independently selected from the group consisting of a carboxyl group, a substituted or unsubstituted C₂-C₁₀ alkoxy carbonyl group and a substituted or unsubstituted C₂-C₁₀ alkylaminocarbonyl group, X₁ and X₂ are independently a halogen atom, and m and n are independently an integer from 0 to 3;

- a charging device which charges the photoreceptor unit;
- an imagewise light irradiating device which irradiates the charged photoreceptor unit with imagewise light to form an electrostatic latent image on the photoreceptor unit;
- a developing unit that develops the electrostatic latent image with a toner to form a toner image on the photoreceptor unit; and
- a transfer device which transfers the toner image onto a receiving material.

31. The image forming apparatus of claim 38, wherein the basic compound is at least one selected from the group consisting of ammonium hydroxide and sodium hydroxide, and an amount of the basic compound is in a range of 1 to 20 parts by weight based on 100 parts by weight of a total weight of solid content of the charge generating layer forming composition.

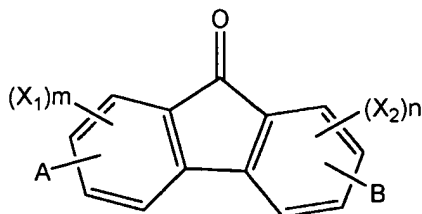
32. The image forming apparatus of claim 35, wherein an overcoat layer is further formed on the charge generating layer.

33. The image forming apparatus of claim 40, wherein the overcoat layer includes at least one selected from the group consisting of polyaminoether, polyurethane and silsesquioxanes.

34. The electrophotographic drum of claim 41, wherein the overcoat layer includes at least one selected from the group consisting of polyaminoether, polyurethane and silsesquioxanes.

35. An image forming apparatus comprising:
a photoreceptor unit comprising:
a positively-charged electrophotographic organic photoreceptor comprising:
an electrically conductive support; and
a charge transport layer and a charge generating layer sequentially stacked on the electrically conductive support,
wherein the charge generating layer is formed by coating a charge generating layer forming composition comprising a fluorene compound represented by Formula 1, a charge generating material, a binder resin and an organic solvent on the charge transport layer, and drying:

Formula 1



wherein A and B are independently selected from the group consisting of a carboxyl group, a substituted or unsubstituted C₂-C₁₀ alkoxy carbonyl group and a substituted or unsubstituted C₂-C₁₀ alkylaminocarbonyl group, X₁ and X₂ are independently a halogen atom, and m and n are independently an integer from 0 to 3;

a charging device which charges the photoreceptor unit;

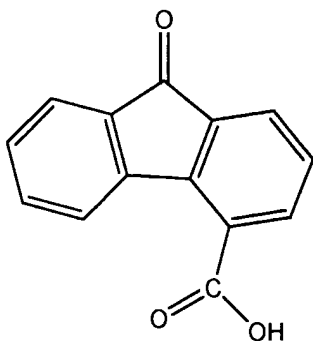
an imagewise light irradiating device which irradiates the charged photoreceptor unit with imagewise light to form an electrostatic latent image on the photoreceptor unit;

a developing unit that develops the electrostatic latent image with a toner to form a toner image on the photoreceptor unit; and

a transfer device which transfers the toner image onto a receiving material.

36. The image forming apparatus of claim 45, wherein the fluorene compound represented by Formula 1 includes a compound represented by Formula 2:

Formula 2



37. The image forming apparatus of claim 45, wherein an amount of the fluorene compound represented by Formula 1 is in a range of 0.1-20 parts by weight based on 100 parts by weight of a total weight of a solid content of the charge generating layer forming composition.

38. The image forming apparatus of claim 45, wherein the charge generating layer forming composition further comprises a basic compound.

39. The image forming apparatus of claim 51, wherein the basic compound is at least one selected from the group consisting of ammonium hydroxide and sodium hydroxide, and an amount of the basic compound is in a range of 1 to 20 parts by weight based on 100 parts by weight of a total weight of solid content of the charge generating layer forming composition.

40. The image forming apparatus of claim 45, wherein an overcoat layer is further formed on the charge generating layer.

41. The image forming apparatus of claim 53, wherein the overcoat layer includes at least one selected from the group consisting of polyaminoether, polyurethane and silsesquioxanes.